

Applicants : Robert L. Bingle, Joseph Camilleri, Peter J. Whitehead and Kenneth Schofield
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Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the present application:

1 (currently amended): An imaging system for a vehicle, said imaging system comprising:
a camera module positionable at the vehicle, said camera module comprising a plastic housing and an imaging sensor having a lens and a pixelated imaging array, said plastic housing including a first portion and a second portion, said first portion and said second portion being one of laser welded and sonic welded together to substantially seal said ~~image~~-imaging sensor and associated components within said plastic housing;

wherein said camera module comprises a self-contained camera module with said imaging sensor and associated components substantially sealed within said plastic housing, and wherein said camera module is configured to be positioned at the vehicle as a unit;

wherein said camera module comprises an electrical connector that is electrically connected to a vehicle electrical connector when said camera module is positioned at the vehicle;

wherein said first portion of said camera module comprises a connector portion and includes said electrical connector at an end thereof and said second portion of said camera module comprises a camera portion and includes a transparent cover portion at or near an end of said lens for receiving an image therethrough; and

a control operable to process video images captured by said ~~image~~-imaging sensor.

2-4 (canceled).

5 (original): The imaging system of claim 4, wherein said transparent cover is one of laser welded and sonic welded to said camera portion.

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6 (currently amended): The imaging system of claim 1, wherein said camera module is positioned in a movable housing that is movable relative to an exterior portion of the vehicle to move said ~~image-imaging~~ sensor between a stored position generally within the portion of the vehicle and an operational position where said ~~image-imaging~~ sensor is positioned to have a field of view exteriorly of the vehicle.

7 (currently amended): The imaging system of claim 6, wherein said movable housing comprises a transparent panel, said transparent panel being positioned at least partially across an opening of said housing and generally in the field of view of said ~~image-imaging~~ sensor.

8 (currently amended): The imaging system of claim 7, wherein said movable housing comprises a panel cleaning device positionable at the exterior portion of the vehicle and configured to engage an exterior surface of said transparent panel to clean said transparent panel as said housing moves said ~~image-imaging~~ sensor between said stored position and said operational position.

9 (currently amended): The imaging system of claim 7, wherein said housing is configured to receive an illumination source, said illumination source being directable toward the exterior scene when said housing moves said ~~image-imaging~~ sensor to said operational position.

10-11 (canceled).

12 (previously presented): The imaging system of claim 1 including at least one illumination source, said control being operable to selectively activate said at least one illumination source in response to a detected ambient light level.

13-14 (canceled).

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15 (currently amended): The imaging system of claim 1, wherein said control is operable to selectively switch said ~~image~~imaging sensor from a color mode to a black and white mode.

16 (currently amended): An ~~The~~ imaging system of claim 1 for a vehicle, said imaging system comprising:

a camera module positionable at the vehicle, said camera module comprising a plastic housing and an imaging sensor, said plastic housing including a first portion and a second portion, said first portion and said second portion being one of laser welded and sonic welded together to substantially seal said imaging sensor and associated components within said plastic housing, wherein said housing includes a ventilation portion, said ventilation portion being at least partially permeable to water vapor to allow water vapor to pass therethrough while substantially precluding passage of at least one of water droplets and contaminants; and
a control operable to process images captured by said imaging sensor.

17-30 (canceled).

31 (currently amended): An imaging system of a vehicle, said imaging system comprising:
an imaging device operable to capture images of a scene occurring exteriorly of the vehicle;

a holding device for movably holding said imaging device, said holding device comprising a housing, a transparent panel and a panel cleaning device, said housing being movably mountable at an exterior portion of a vehicle, said imaging device being positioned within said housing, said transparent panel being positioned at least partially across an opening of said housing and generally in the field of view of said imaging device, said housing being movable relative to the exterior portion of the vehicle to move said imaging device between a stored position, where said imaging device is positioned generally within the portion of the vehicle, and an operational position, where said imaging device is positioned to have a field of view exteriorly of the vehicle; and

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wherein said panel cleaning device comprises a wiper element, said panel cleaning device being positionable at the exterior portion of the vehicle and configured to engage an exterior surface of said transparent panel to clean said transparent panel as said housing moves said imaging device between said stored position and said operational position; and
a control operable to process images captured by said imaging device.

32-33 (canceled).

34 (original): The imaging system of claim 31, wherein said housing moves said imaging device to said operational position in response to engagement of a reverse gear of the vehicle.

35 (original): The imaging system of claim 31 including a spraying device operable to spray fluid onto said transparent panel.

36 (original): The imaging system of claim 31 including an illumination source that is selectively operable to illuminate the exterior scene.

37 (original): The imaging system of claim 36, wherein said housing is configured to receive said illumination source, said illumination source being directable toward the exterior scene when said housing moves said imaging device to said operational position.

38-39 (canceled).

40 (previously presented): The imaging system of claim 37, wherein said control is operable to selectively activate said illumination source and said imaging device when said imaging device is moved to said stored position to determine if moisture is present on said transparent panel.

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41 (previously presented): The imaging system of claim 36, wherein said control is operable to selectively activate said illumination source in response to at least one of (a) said imaging device being in said operational position and (b) a detected ambient light level.

42-46 (canceled).

47 (original): The imaging system of claim 31, wherein said housing is movable to selectively position said imaging device in first and second operational positions.

48 (original): The imaging system of claim 47, wherein said control is operable to determine a distance to at least one object in response to processing of images captured by said imaging device when in said first and second operational positions.

49 (currently amended): An The imaging system of claim 47 of a vehicle, said imaging system comprising:

an imaging device operable to capture images of a scene occurring exteriorly of the vehicle;

a holding device for movably holding said imaging device, said holding device comprising a housing, a transparent panel and a panel cleaning device, said housing being movably mountable at an exterior portion of a vehicle, said imaging device being positioned within said housing, said transparent panel being positioned at least partially across an opening of said housing and generally in the field of view of said imaging device, said housing being movable relative to the exterior portion of the vehicle to move said imaging device between a stored position, where said imaging device is positioned generally within the portion of the vehicle, and an operational position, where said imaging device is positioned to have a field of view exteriorly of the vehicle, said panel cleaning device being positionable at the exterior portion of the vehicle and configured to engage an exterior surface of said transparent panel to

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clean said transparent panel as said housing moves said imaging device between said stored position and said operational position;

a control operable to process images captured by said imaging device; and

wherein said housing is movable to selectively position said imaging device in first and second operational positions, and wherein said control is operable to selectively move said housing to position said imaging device at said first operational position in response to the vehicle making an initial approach to a target zone and to position said imaging device at said second operational position in response to the vehicle moving further into the target zone, said imaging device being directed more downward when in said second operational position relative to said first operational position.

50-65 (canceled).